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RESEARCH ARTICLE

Evaluation of Comparative Efficacy of *Swadamshtradi Tail Matrabasti* and *Katibasti* in *Katishoola* (I.V.D.P.) – A Comparative Randomized Clinical Study

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Abstract

Background: The primary cause of *Katishoola* is vitiation of the *Vata Dosha.* As a symptom of several illnesses including *Katigraha, Trikagraha, Prushtagraha, Kativayu, Trikashoola, Prushtashool, Vataja Shoola, Trika Vedana,* and *Grudrasi Vata, Katishoola* is also mentioned in certain ancient literature. Low back discomfort, also known as *katishoola,* is a common ailment throughout early and middle adulthood. It is the most typical complex that is commonly associated with the musculoskeletal system. Almost all adults can recall having back pain at some point in their lives. The effectiveness of *Katibasti* and *Swadamshtradi tail Matratail* in *Katishoola* (Intervertebral Disc Prolapse (I.V.D.P.)) is the goal. **Aim**: I.V.D.P. were to evaluate the assesscacy of *Swadamshtradi Taila Katibasti* in *Katishoola*, to evaluate the effieffectiveness of *Swadamshtradi Taila Matrabasti* in *Katishool,* and to compare the effect of *Swadamshtradi Taila Matrabasti* and *Swadamshtradi Taila Katibasti* in *Katishoola*. **Methods**: This was a comparative randomized clinical study - a minimum of 30 patients distributed equally in two groups, 15 patients in each group. In Group A, 15 patients were given a standard Matrabasti procedure with Swadamshtradi Taila's help for nine days. In Group B, 15 patients were given a traditional method of *Katibasti* with the help of *Swadamshtradi Taila* for nine days. Paired t-test was used for the assessment of parameters. **Results**: *Matrabasti* showed statistically highly significant improvement in cardinal symptoms of *Katishoola*; comparing the percentage-wise relief, *Katibasti* seems to be more effective on overall symptoms of *Katishoola*. **Conclusion**: *Shwadanshtradi* oil *matrabasti* is more effective and easily available.

Major Findings: Group B showed significant changes in pain, stiffness, restricted movement and Scobers test. Group A showed highly significant changes in SLRT parameters.

Keywords: Inter Vertebral Disc Prolapse, Low Backache, Medicated Oil Enema, Oswestry Low Back Questionnaire and SLRT, Scober Test

1. Introduction

Brihatrayee does not explicitly address *katishool*, but references allow us to treat it as a separate disorder. Even though *katishool* was not included in the 80 *Nanatmaja Vatavyadhis* in *Charak Samhita*, *Charak* indicated in the instance of *Anukta Vikara* that the Vitiated *Vata* arrives to which location, organ causes ailments like *Shool*, *Shosh*, *Supti*, *Sankocha*, and *Stambha*. All of them should be regarded as *Vatvikara*. *Katiruja*, *Kativedana*, *Katitod*, *Katistambha*, *Katigraha*, *Trikshoola*, *etc.* are illnesses comparable to *Katishool*. *SSchoolRuja*, *Stambha*, *Toda*, *etc.*, are symptoms produced when *Shuddha* or *SamVata* enters *Kati*[1].

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In his description of *Kati Prusthagata Vata* and *Katishoola* as one of the *Lakshana* in *bhagandara*, Bhela has mentioned *Katishoola* as one of the *Vatavyadhi* and listed under *Ekanga Roga* in *sutrasthana*. *Katishoola* in *Vataja Nanatmaja* was a part of Sharangadhara[2].

Aginging and physical degeneration are ongoing. The onset of degenerative illnesses, the most common of which are arthritis, spondylosis, P.I.D., low back pain, *etc.*, is brought on by the changing lifestyle of today, which has sped up the degenerative process[3].

Katishoola (low back discomfort) comes in inflavorsvours: specific and non–specific. There is no known cause in 90% of instances, and in the remaining 10%, conditions like fractures, infections, and cancer are now numerous clinical diseases that can cause low back pain, including spondylolysis, space-occupying lesions, spinal tuberculosis, Intervertebral Disc Prolapse (I.V.D.P.), *etc*[4].

Intervertebral Disc Prolapse (I.V.D.P.) damages the cushioning intervertebral disc between vertebrae. Lifting or twisting injuries to intervertebral joints, ligaments, and muscles typically cause severe lumbosacral strain. The fundamental causal disease of the I.V.D.P. is the degeneration of the outer ring, or annulus fibrosus, caused by an increase in age, leading to the disc's tear (posterior–lateral or lateral direction). Even without nerve root compression, this disease releases chemicals that cause inflammation and intense Pain. It may result in symptoms including low back discomfort, stabbing Pain in various body parts, noticeable lower limbs, and physical incapacity[5].

Basti is used to get rid of dosha through the anal area; it also gets rid of other doshas, calms down irritated doshas, and removes pollutants from the body. Therefore, Basti is the finest method for removing the body's vata dosha and other impurities[6].

Kati basti is a *Bahyaupakrama* in which the *Kati* region is covered with comfortably heated oil for a predetermined amount of time. This *Bahyaupakrama* has both *Snehana* and *Swedana* effects. *Matra Basti* and *Kati Basti* can be used as O.P.D. level procedures[7].

For the *basti karma,* which incorporates *Gokshur, Tila Tail, Kshir, Guda (Jaggery),* and *Adrak (Shunthi)*[8,9] — *Swadamshtraditaila,* which exerts *vatahara* and *vedanasthapak action,* was mentioned by *Vangasena Samhita* and *Bharat Bhaishajya Ratanakar*[10].

Hence in the present study, *Matrabasti* and *Katibasti* are selected for the patient of *Katishool* to evaluate the efficacy of *Swadamshtraditaila.* Evaluation of Comparative efficacy of *Swadamshtradi tail Matrabasti* and *Katibasti* in *Katishoola* (I.V.D.P.) – A comparative randomized clinical study.

- To study the efficacy of *Swadamshtradi Taila Katibasti* on *Pain, Scober Test*, Oswestry low back questionnaire and SLRT.
- To study the efficacy of *Swadamshtradi Taila Matrabasti* in *Pain, Scober Test*, Oswestry low back questionnaire and SLRT.
- To compare the effect of *Swadamshtradi Taila Matrabasti* and *Swadamshtradi Taila Katibasti* in Pain, Scober Test, Oswestry low back questionnaire and SLRT.

2. Materials and Methods

After receiving the IEC, enrolment was started based on case definition and inclusion criteria (Table 1).

3. Criteria of Diagnosis

The signs and symptoms of *Katishoola* mentioned in the *Ayurveda* based on diagnosis and the criteria laid down for I.V.D.P. are as follows:

- *Shoola* in *Katipradesha*
- *Sthambana* in *katipradesha*
- A diagnosed case of I.V.D.P. (M.R.I. Diagnosed)

3.1 Inclusion Criteria

- Patients range in age from 20 to 60.
- Individuals experiencing *Katishoola* (Lumbago brought on by spinal disc dislocation).
- An I.V.D.P. diagnosis with clinical symptoms lasting between six months and a year and no neurological damage.
- Patients with early Straight Leg Raising Test (S.L.R.T.) have positive results at 40 degrees or less.
- Patients, regardless of gender, religion, line of work, or socioeconomic standing.

3.2 Exclusion Criteria

- Patients suffer from neurological problems.

Table 1. Grouping and posology

1	Ethical Committee Approval	D.M.I.M.S. (D.U.)/I.E.C./2015–16/1323
2	Case Definition	A diagnosed case of Intervertebral Disc Prolapsed (I.V.D.P.) with Clinical symptoms from 6 months to 1 year without neurological deficit.
3	Study Design	Comparative Randomized Clinical Study.
4	Sample Size and Grouping	30 patients were distributed equally into two groups, 15 in each group.
5	Group A Patients	In this group, 15 patients were given a standard procedure of *Matrabasti* with the help of *Swadamshtradi Taila* for 9 days.
6	Group B Patients	In this group, 15 patients were given a standard *Katibasti* procedure with *Swadamshtradi Tail* for 9 days.
7	Posology	60 ml of *Swadamshtradi Tail* for *Matrabasti.* 150 ml of *Swadamshtradi Tail* for *Katibasti* for 30 min.
8	Study Duration	9 days
9	Followup days	18 days
10	Last, follow up	27th day
11	Total Study Duration	27 days

- Various intervertebral disc conditions.
- Myelopathy is associated with lumbar and other intervertebral disc diseases.
- Radiculopathy–related intervertebral disc problems in the lumbar region.
- Degeneration of another specific intervertebral disc.
- Schmorl nodes.
- Additional specific intervertebral disc conditions.
- An unidentified intervertebral disc disease.
- Patients with other underlying illnesses include spondylolisthesis, spina bifida, vertebral. fractures, and malignant disorders: traumatic patients and pregnant women.
- Both simple and complicated fractures are related to it.
- Local skin diseases are excluded because the oil is directly stored on Timber.

4. Materials

4.1 *Swadamshtradi Tail*

Vatavyadhi Adhikara, a *Swadamshtradi tail* that is listed in the *Vangasena Samhita,* was chosen for the study because no clinical research has been done to date by any research personnel to assess its efficacy in *Katishoola.* There are only five ingredients in the oil that was selected for *Matrabasti.* All substances are readily available, inexpensive, and have *vata-pacifying* qualities. According to historical texts, the oil for the current clinical investigation is made in a pharmacy connected to the Mahatma Gandhi Ayurved College with the following components:

- *Swadamshtra* or *Gokshurakvatha* (2.56 Parts) – 42 litres
- *Tilataila* (1.28 Parts) – 21 liters
- *Kshira* (2.56 Parts) – 42 litres
- *Sringavera*or *Ardraka* (1 part) – 1 kg
- *Guda* (4 parts) – 4 kg

4.2 Preparation

The Ayurvedic Samhita states that the drugs listed are combined to create *swadamshtraditaila*. *Tilataila* and *godugdha* are added, heated, and stirred regularly to prevent the *Kalka* from sticking to the pot. When all of the apadravyas have disappeared and *Samyakasneha Siddhi Lakshan* has been noticed, *Madhyama Snehapaka* is complete. Filtering and storing the residual oil are done for later use.

Method of administration of *Matra Basti* – done with the classical approach.

- Group A – *Matrabasti* group: *Matrabsti* was performed after food with a dose of 60 ml daily for 9 days.

Method of administration of *Katibasti* – done with the classical method.

- Group B – *Katibasti* Group: In this group, *Katibasti* was performed with *Swadamshtraditaila* once a day for 9 days.

Methods of Assessment of clinical response (Tables 2 and 3). Clinical and functional parameters were made out to assess the clinical response in both groups.

5. Results

In group A, 66.66% of male and 33.33% of female patients were registered. In group B, 66.66% of male and 33.33% of female patients were registered.

In Group A, it was observed that 73.33% of patients belonged to the Hindu religion, 13.33% belonged to the Muslim faith, and 13.33% belonged to other religions.

In Group B, it is observed that 80% of patients belonged to the Hindu religion, 6.66% belonged to the Muslim faith, and 13.33% belonged to other religions.

In Group A, the age group was divided into sub in the present study; 40% of the patients were in the 20–29 years age group, 20% of the patients were in the 30–39 years age group, 26.66% of the patients were of 40–49 years age group and 13.33% of >50 years age group.

In the current study, Group B, the age group, was broken down into subgroups, with 40% of the patients falling into the 20–29 age range, 20% falling into the 30–39 age range, 26.66% coming into the 40–49 age range, and 13.33% falling into the >50 age range. 13.33% of group A's patients were drivers, 6.67% were farmers, 13.33% were housewives, 6.67% were masseuses, 6.67% were journalists, 6.67% were shopkeepers, 26.66% were students, 13.33% were teachers, and 6.67% were workers.

33.33% of the patients in group B were farmers, 26.7% were housewives, 6.6 % were carers, 6.6% worked in the business world, 13.33% were engineers, 6.6% were teachers and 6.6% were railway T.C.

In Group A, there is a statistically significant difference between the pre– and post-treatment values for the subjective parameters for Pain radiating from the back to the thigh, knee, and calf (t=4.000; p=0.001). With t=3.41 and a p-value of 0.004, the stiffness radiating from the back to the thigh, knee, and calf is significantly different before and after therapy. Restricted back mobility reveals t=3.623, with a p-value of 0.003 indicating a statistically significant difference between the pre– and post-treatment conditions.

In Group B, There is a statistically significant difference between the pre– and post-treatment values for the subjective parameter of Pain radiating from back to thigh, knee, and calf (t=8.876, p=0.0001). The stiffness radiating from the back to the thigh, knee, and calf exhibits t=7.40, with a p–p-value of 0.0001 indicating a statistically significant difference between the pre– and post-treatment conditions. Restricted back movement reveals t=8.367 with a p-value of 0.0001 and a statistically significant difference between the pre– and post-treatment periods (Table 4).

Table 2. Subjective parameters

S. No.	Parameters	Grading
1	Shoola (Pain)	Grade 1 – No pain Grade 2 – Mild pain Grade 3 – Moderate pain Grade 4 – Severe pain
2	*Sthambha* (Stiffness)	Grade 0 – Normal movement Grade 1 – 0 to 25% restricted Grade 2 – 25% to 50% restricted Grade 3 – 50% to 75% restricted Grade 4 – 75% to 100% restricted

Table 3. Objective parameters

S. No.	Parameters
1	Straight leg raising test
2	Schober's test
3	Oswestry low back questionnaire

Table 4. Statistical analysis of subjective parameters of clinical study

Group	Parameter	Mean B.T.	Mean AT	Improvement %	t–value	p-value
Group A	Pain	3.46±0.51	2.66±0.61	23.13	4.000	0.001, S
	Stiffness	3.20±0.41	2.20±1.01	31.25	3.41	0.004, S
	Restricted movement of the back	3.06±0.25	2.06±1.16	32.68	3.623	0.003, S
Group B	Pain	3.46±0.51	2.00±0.53	42.19	8.876	0.0001, S
	Stiffness	3.00±0.00	1.20±0.94	60.00	7.40	0.0001, S
	Restricted movement of the back	2.93±0.25	0.93±0.88	68.26	8.367	0.0001, S

Table 5. Statistical analysis of objective parameters of Group A and B

Group	Parameter		Mean B.T.	Mean AT	Improvement %	t–value	p-value
Group A	"Schober's test"		16.60±0.63	18.06±0.35	8.80%	4.363	0.001, S
	"Oswestry low back questionnaire"		49.28±8.35	38.25±12.52	22.38%	4.80	0.0001, S
	S.L.R.T.	Right Side	57.33±22.82	69.33±18.69	20.93 %	2.882	0.012, S
		Left Side	66.33±23.78	75.66±4.59	14.07 %	2.375	0.032, S
Group B	Schober's test		16.40±0.50	19.13±0.74	16.65%	15.043	0.0001, S
	"Oswestry low back questionnaire"		45.65±5.20	29.86±8.12	34.59%	10.51	0.0001, S
	S.L.R.T.	Right Side	55.33±17.67	76.66±12.90	38.55%	5.323	0.0001, S
		Left Side	73.66±16.52	84.00±9.85	14.04%	3.507	0.003, S

Table 6. Improvement of subjective parameters in Groups A and B

Group	Subjective parameters	Mean B.T.	Mean AT	Improvement %
Group A	All Subjective parameters	3.24	2.30	29.01
Group B	All Subjective parameters	3.13	1.37	56.23

Table 7. Improvement in objective parameters in Groups A and B

Group	Objective parameters	Mean B.T.	Mean AT	Improvement %
Group A	All Objective parameters	63.18	67.1	6.20
Group B	All Objective parameters	63.68	69.88	9.73

Table 5 shows that the objective parameters' overall improvement shows a statistically significant difference before and after treatment.

In Group A – All subjective parameters mean before treatment 3.24 and after treatment 2.30. The percentage of improvement was 29.01%.

In Group B – All personal parameters mean before treatment 3.13 and after treatment 1.37. The rate of progress was 56.23% shown in Table 6.

In Group A, the pre-treatment mean for all objective metrics was 63.18, while the post-treatment mean was 67.1. The improvement rate was 6.20 %.

In Group B, all objective measures correspond to 63.68 prior to therapy and 69.88 following treatment. 9.73% was the percentage of improvement(Table 7).

Table 8, shows that the improvement in major, moderate, mild and unchanged was 6.66%, 20, and 53.33%, respectively in Groups A and B.

Table 8. Overall improvement before and after treatment in Group A and B

Impro vement	Group A Patients	Group A Percentage (%)	Group B Patients	Group B Percentage (%)
Major	0	0	1	6.66
Moderate	3	20	8	53.33
Mild	6	40	6	40
Unchanged	6	40	0	0
Total	15	100	15	100

6. Discussion

Matrabasti and *Katibasti* of *Swadamshtradi Taila* were the subjects of the statistical analysis. In every metric, *Matrabasti* and *Katibasti* both displayed substantial results. When compared to *Matrabasti* clinically, *Katibasti* improved more in these parameters.

6.1 Pain Radiating from Back to Thigh, Knee and Calf

For the parameter pain, in Group A, the mean BT 3.46 was reduced to 2 .66 after treatment; the t value is 4 .00, $p<0.001$, and relief 23.13% and in Group B, the mean was BT 3.46 was reduced to 2.0 after treatment t value is 8.876 $p<0.0001$ value, and relief 42.19%. Hence clinically, Group B patients showed better improvement in the reduction of pain.

6.2 Stiffness Radiating from Back to Thigh, Knee and Calf

For the parameter stiffness, in Group A the mean BT 3.20 was reduced to 2.20 after treatment, the t value is 3.4 1, $p<0.004$, and relief 31.25% and in Group B, the mean was BT 3.00 reduced to 1.20 after treatment t value is 7.40 $p<0.0001$ value, and relief 60.00%. Hence

clinically, Group B patients improved significantly in reducing stiffness.

6.3 Restricted Movement of the Back

For the parameter-restricted movement of the back, in Group A, the mean BT 3.06 was reduced to 2.06 after treatment, the t value is 3.623, p<0.003, and relief 32.68% and in Group B, the mean was BT 2.93 reduced by 0.93 after treatment t value is 8.367 p<0.0001 value, and relief 68.26% Hence clinically, Group B patients showed better improvement in reduction of restricted movement of back.

6.4 Schober's Test

For the parameter Schober's Test, in Group A, the mean BT 16.60 was increased to 18.06 after treatment, the t value was 4.363, p<0.001, and relief 8.80% and in Group B, the mean was BT 16.40 increased by 19.13 after treatment t value was 15.043, p<0.0001 value, relief 16.65%. Hence clinically, Group B patients showed better improvement in an increase of the SchoberTest.

6.5 S.L.R.T.

For the parameter S.L.R.T. (Right Side), in Group A, the mean BT 57.33 was increased to 69.33 after treatment, the t value was 2.882, p<0.012, and relief 20.93 % and in Group B, the mean was BT 55.33 increased 76.66 after treatment t value is 5.323 p<0.0001 value, and relief 38.55%. Hence clinically, Group B patients showed better improvement in an increase of S.L.R.T. (Right Side).

For the parameter S.L.R.T. (Left Side), in Group A the mean BT 66.33 was increased to 75.66 after treatment, the t value was 2.375, p<0.032, and relief 14.07 % and in Group B the mean was BT 73.66 increased 84.00 after treatment t value is 3.507 p<0.003 value, and relief 14.04%. Hence clinically, Group A and B patients showed similar improvement in an increase of S.L.R.T. (Left Side).

6.6 Probable Mode of Action of *Shwdamshtra*

Shwadanshradi oil ingredients are *Gokshur* (Tribulus Terrestris), *Tila* Taila (Sesame Oil), *Kshir* (milk), *Sunthi* (Zingiber officinale) and *Guda* (Jaggery)[11].

Basti has been indicated in the treatment of *Shoolahara*. The main contain of *Shwadanshradi* oil is *Gokshur*. *Gokshur* (Tribulus Terrestris) is *madur rasa* with *Guru* and *snigdha guna*. It innately portrays *Shita virya* and *Madhura vipaka*. *Ayurveda* classifies this herb as *Tridoshahara*. Based on research, it is proven that *Gokshur* has the action as analgesic activity, antiinflammatory[12] activity, and on the musculoskeletal system due to flavonoids[13].

Adrak is utilised in the Ayurvedic medical system to relieve stiffness, swelling, and aches brought on by rheumatic disorders because they let cold and dampness into the body[14].

Guda (Jagerry) *Guru guna* has pharmacological effects similar to those of *Balya Tarpana*, *Triptijanak*, *Virechan*, and *Vrishya1*. It acts as a *vatahara* and *kaphavardhak*, nourishes *dhatus* (Brimhana), raises *malas*, and increases *malas*[15].

Ksheera is *Jeevaniya, Balya, Rasayana, Medhya, Sara*, and *Anulomaka* in nature and has *Madhura Rasa, Snigdha Guna*, and *Madhura Vipaka*. As a result, it offers *Dhatu Poshana*, reducing *Vata* and bolstering the muscles and joints to support regular *Prasarana* and *Akunchana*.

6.7 Probable Mode of Action of *Matrabasti*

Their *virya* (potency) is primarily responsible for *vastidravya's* action. The transrectal route is used to administer *vasti*. Drugs can traverse the rectal mucosa like other lipid membranes, and lipid-soluble compounds can be easily seen from the rectum. The rectum has a high blood supply and lymph supply. Since no digestion occurs, this medication begins to work immediately without changing its form. It also stimulates the large intestine's initial mass peristalsis, which aids in the therapy's goal of promoting the expulsion of toxic compounds. Sodium and potassium, which are vitally important fundamental components for the neurological system, will become interested in the colon when *Basti dravya* reaches the *Pakvasaya*, and Vitamin B12 will also begin to get absorbed.

Colonic plexuses, which come from hypogastric plexuses (which aid in treating digestive system issues) and lumbosacral plexuses (which assist in treating and nourishing backbone and spine problems), are numerous nerve plexuses that run behind the *Pakvasaya*. According to *Ayurveda*, *basti karma* is a comprehensive treatment because it nourishes, purifies,

and expels impurities from the body in addition to increasing the colon's capacity for absorption.

6.8 Probable Mode of Action of *Katibasti*

The lower back's joints are nourished by *katibasti,* which also calms the dosha that is producing pain or discomfort, calms the nerves, and treats pain by easing degeneration, stiffness, and inflammation. The process known as *katibasti* incorporates the traits of both *Snehana* and *Swedana*. The choice of *Katibasti* was made since it directly touches sensitive areas.

7. Conclusion

Basti demonstrated a moderate improvement in the greatest number of patients when assessing the therapy's overall impact. Improvement was seen in *Katishoola* for both the *Matrabasti* and *Katibasti* groups. When the data from the observations and tests were statistically analysed, Group B's "*Katibasti*" group showed a substantial improvement.

When comparing the percentage-wise relief, *Katibasti* appears to be more effective on all of the symptoms of *Katishoola*, even though *Matrabasti* has also shown statistically highly significant improvement in the cardinal symptoms of *Katishoola*.

8. Author Contribution

Kshitij: Collected data; Shweta: Finalized the draft; Milind: Analyzed the result. All authors have read and agreed to the published version of the manuscript.

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